

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A selection module for use in an optical signal switch, said module ~~comprising a spatial selector~~ comprising:

a spatial selector comprising a plurality of inputs each receiving a wavelength division multiplexed optical signal comprising a plurality of channels each associated with a separate wavelength, and an output delivering a single signal selected from said plurality of wavelength division multiplexed signals,~~and ; and~~

a plurality of spectral selectors each selecting a channel from a plurality of channels of said signal selected by said spatial selector.

2. (Original) The selection module claimed in claim 1, further comprising a first optical coupler having an input connected to said output of said spatial selector and a plurality of outputs each connected to an input of one of said spectral selectors.

3. (Original) The selection module claimed in claim 1 wherein said spatial selector comprises:

an optical coupler having a number of inputs equal to the number of inputs of said spatial selector and one output, and

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a plurality of optical switches each associated with one of said inputs of said optical coupler and each having an input that constitutes an input of said spatial selector and an output coupled to said associated input of said second optical coupler.

4. (Original) The selection module claimed in claim 3 wherein said optical switches of said spatial selector are semiconductor optical amplifiers.

5. (Original) The selection module claimed in claim 1 wherein each of said spectral selectors comprises:

a demultiplexer comprising an input receiving said signal selected by said spatial selector and a plurality of outputs,

a multiplexer comprising a plurality of inputs and an output supplying the signal associated with a channel selected from a plurality of channels of said signal selected by said spatial selector, and

a plurality of optical switches each comprising an input connected to an output of said demultiplexer and an output connected to an input of said multiplexer.

6. (Original) The selection module claimed in claim 5 wherein said optical switches of said spectral selector are semiconductor optical amplifiers.

7. (Original) The selection module claimed in claim 1 further comprising an optical amplifier for amplifying said signal selected by said spatial selector and having an input connected to the output of said spatial selector.

8. (Previously Presented) An optical signal switch adapted to receive a plurality of wavelength division multiplex (WDM) input signals and comprising output ports supplying

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wavelength division multiplexed output signals each comprising a plurality of channels each associated with one wavelength, each of said input signals comprising a plurality of channels each associated with one wavelength, and said switch comprising a broadcast stage comprising optical couplers associated with respective input signals, each optical coupler receiving at its input said associated input signal and broadcasting said signal toward a plurality of output ports, and a selection stage comprising a plurality of outputs, and a plurality of selection modules each having L inputs, said plurality of selection modules comprising means for selecting at one of said outputs one of said channels associated with one of said broadcast input signals, in which switch said selection stage comprises at least one selection module ~~as claimed in claim 1 comprising:~~

a spatial selector comprising a plurality of inputs each receiving a wavelength division multiplexed optical signal comprising a plurality of channels each associated with a separate wavelength, and an output delivering a single signal selected from said plurality of wavelength division multiplexed signals; and

a plurality of spectral selectors each selecting a channel from a plurality of channels of said signal selected by said spatial selector.

9. (Original) The switch claimed in claim 8 wherein said at least one selection module comprises n outputs each assigned to selecting one channel from a plurality of channels of said signal selected by said spatial selector, where n is an integer greater than 1 and less than $C_e P_s + 1$, where C_e is the number of said channels of said WDM input signal and P_s is the number of said output ports.

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10. (Previously Presented) The switch claimed in claim 8 wherein each of said output ports is associated with u_k of said plurality of selection modules, each module comprising a spatial selector comprising said L inputs each receiving a WDM optical signal comprising a plurality of said channels, an output delivering a single signal selected from said L inputs, and k spectral selectors each selecting one channel from a plurality of channels of said signal selected by said spatial selector, C_e designating the number of said channels of said WDM input signal and being an integer multiple of P_s greater than 1, P_s being the number of said output ports, k varying from 1 to C_e/P_s , and u_k being defined by the equation:

$$u_k = E\left(\frac{C_s - v_k - L \cdot (k-1)}{k}\right) + (C_s - v_k - L \cdot (k-1)) \bmod [k]$$

where $v_k = v_{k+1} + k \cdot u_k$ and $v \frac{C_e}{P_s} = 0$,

the operator $E()$ designating the integer part function, and k varying from 2 to C_e/P_s .

11. (Previously Presented) The switch claimed in claim 8 comprising P_s multiplexers each comprising C_s inputs and one output connected to one of said output ports.